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Utilization Of  
AID-Financed Fertilizer  
To Increase Agricultural  
Production In India B-161854

Agency for International Development  
Department of State

UNITED STATES  
GENERAL ACCOUNTING OFFICE

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NOV. 16, 1971



UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

INTERNATIONAL DIVISION

B-161854

Dear Dr. Hannah:

This is our report on the utilization of AID-financed fertilizer to increase agricultural production in India. 97

Copies of this report are being sent to the Director, Office of Management and Budget, and to the Foreign Operations and Government Information Subcommittee, House Committee on Government Operations. # 5111

Sincerely yours,

A handwritten signature in black ink, appearing to read "Dyckhoff", written in a cursive style.

Director, International Division

The Honorable John A. Hannah  
Administrator  
Agency for International Development 57

*GENERAL ACCOUNTING OFFICE  
REPORT TO THE ADMINISTRATOR,  
AGENCY FOR INTERNATIONAL DEVELOPMENT*

UTILIZATION OF AID-FINANCED  
FERTILIZER TO INCREASE  
AGRICULTURAL PRODUCTION IN  
INDIA  
Agency for International  
Development  
Department of State B-161854

D I G E S T

WHY THE REVIEW WAS MADE

As of May 1970, the Agency for International Development (AID) had provided a total of \$429 million in loans to India to finance fertilizer imports. AID also assisted in financing fertilizer production facilities in various parts of India.

Since fertilizer is vital to India, if it is to become self-sufficient in food-grain production, the General Accounting Office reviewed the fertilizer import program to ascertain whether the commodity was being used effectively. (See pp. 4 and 5.)

FINDINGS AND CONCLUSIONS

India's distribution and reporting system was not adequate for absorbing the significant increase of fertilizer available under the program and thus hindered its effectiveness. Also procurement specifications for one of the principal types of fertilizer were changed without determining whether the new product would be acceptable to its users.

As a result of these problems, together with unfavorable weather conditions in some areas of India that decreased the demand for fertilizer, supplies of ammonium sulfate and diammonium phosphate valued at about \$70 million remained unused as of January and April 1970. The fertilizer had been financed by AID commodity loans during fiscal years 1967 through 1969. (See pp. 6 to 11.)

No one actually knew the amount of ammonium sulfate on hand in India. Estimates of ammonium sulfate on hand as of April 1970 ranged from 500,000 to 1.1 million tons. (See p. 6.)

Some types of ammonium sulfate did not move as fast as expected, because market preference shifted to urea-based fertilizer as it became more readily available. In addition, according to AID, some stocks of ammonium sulfate, purchased under new specifications, proved difficult to sell. No test of consumer acceptance of this substitute product was made in India prior to its purchase. (See pp. 6 and 7.)

NOV. 16, 1971

About \$15 million worth of diammonium phosphate delivered to four States had been on hand for 10 months or more as of January 31, 1970. The fertilizer was shipped to locations where it already was being produced locally. Also unfavorable weather conditions reduced the demand for fertilizer generally. The limitations of the marketing and distribution system also may have contributed to the reduced consumption.

The lack of an adequate distribution and reporting system for fertilizer caused problems of oversupply in some States of certain types of fertilizer which were readily marketable in other locations. It caused also an additional financial burden for distributors, because added costs were incurred for storage and reconditioning of fertilizer which had deteriorated. (See pp. 9 and 10.)

Through a 1961 agreement with the International Cooperation Administration (predecessor agency of AID), United States-owned Indian currency valued at \$19 million had been made available to assist in constructing a storage and distribution system for food grain in India. No such similar assistance was provided, however, when large-volume shipments of fertilizer were approved for financing, even though the need for such a system was recognized. Moreover, an AID-financed study team on fertilizer marketing in India reported that the Government of India's program for providing a storage and distribution system for fertilizer, seed grains, and other commodities had no relation to market strategy and that warehouse space had been constructed with no apparent relation to need.

Concern expressed by the Aid to India Consortium,<sup>1</sup> as well as by the World Bank, about the marketing, distribution, and reporting system for fertilizer in India indicated that there was a need for concurrent planning in this area. (See pp. 9 and 12.)

Adequate amounts of local currency were available for financing projects of this type and had been used in prior years to provide facilities for storage and distribution of food grains. (See pp. 12 and 13.)

In placing primary emphasis on financing of fertilizer to assist India in achieving self-sufficiency in food grains, AID should have tested the marketability of new products being financed and should have established a system to be used to rapidly identify changes in consumer preferences.

#### RECOMMENDATIONS OR SUGGESTIONS

None.

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<sup>1</sup>A group of 13 nations headed by the International Bank for Reconstruction and Development (World Bank), joined together to assist in developing the economy of India.

AGENCY ACTIONS AND UNRESOLVED ISSUES

AID generally agreed with our findings pertaining to the large accumulations of fertilizer but suggested that the circumstances surrounding the accumulation of the fertilizer be viewed against the background of a very rapid market expansion in India. AID also attributed accumulations of diammonium phosphate to prevailing weather conditions and the accumulation of ammonium sulfate to competition from urea. (See app. I.)

AID pointed out that the storage and distribution system for fertilizer in India had not developed sufficiently so that it could quickly adjust to changing market situations. AID questioned whether financial assistance from the United States was needed to improve the situation. Additionally, private marketing organizations, given greater scope by the Indian Government, were improving the marketing of fertilizer and the quality of storage facilities. AID said that further development in that direction should lead to a satisfactory marketing mechanism but that some investment in new storage facilities would be needed.

At the suggestion and with the assistance of AID, in 1968 the Government of India developed a new reporting system to forecast its import requirement, which it is now installing.

The World Bank and others believe that India will require fertilizer imports for the next few years; however, the system of distribution and marketing is a limiting factor in increasing fertilizer consumption. The World Bank believes that the development of a more efficient marketing organization may require financial assistance.

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*GENERAL ACCOUNTING OFFICE  
REPORT TO THE ADMINISTRATOR,  
AGENCY FOR INTERNATIONAL DEVELOPMENT*

UTILIZATION OF AID-FINANCED  
FERTILIZER TO INCREASE  
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India's distribution and reporting system was not adequate for absorbing the significant increase of fertilizer available under the program and thus hindered its effectiveness. Also procurement specifications for one of the principal types of fertilizer were changed without determining whether the new product would be acceptable to its users.

As a result of these problems, together with unfavorable weather conditions in some areas of India that decreased the demand for fertilizer, supplies of ammonium sulfate and diammonium phosphate valued at about \$70 million remained unused as of January and April 1970. The fertilizer had been financed by AID commodity loans during fiscal years 1967 through 1969. (See pp. 6 to 11.)

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Some types of ammonium sulfate did not move as fast as expected, because market preference shifted to urea-based fertilizer as it became more readily available. In addition, according to AID, some stocks of ammonium sulfate, purchased under new specifications, proved difficult to sell. No test of consumer acceptance of this substitute product was made in India prior to its purchase. (See pp. 6 and 7.)

About \$15 million worth of diammonium phosphate delivered to four States had been on hand for 10 months or more as of January 31, 1970. The fertilizer was shipped to locations where it already was being produced locally. Also unfavorable weather conditions reduced the demand for fertilizer generally. The limitations of the marketing and distribution system also may have contributed to the reduced consumption.

The lack of an adequate distribution and reporting system for fertilizer caused problems of oversupply in some States of certain types of fertilizer which were readily marketable in other locations. It caused also an additional financial burden for distributors, because added costs were incurred for storage and reconditioning of fertilizer which had deteriorated. (See pp. 9 and 10.)

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Concern expressed by the Aid to India Consortium,<sup>1</sup> as well as by the World Bank, about the marketing, distribution, and reporting system for fertilizer in India indicated that there was a need for concurrent planning in this area. (See pp. 9 and 12.)

Adequate amounts of local currency were available for financing projects of this type and had been used in prior years to provide facilities for storage and distribution of food grains. (See pp. 12 and 13.)

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AID pointed out that the storage and distribution system for fertilizer in India had not developed sufficiently so that it could quickly adjust to changing market situations. AID questioned whether financial assistance from the United States was needed to improve the situation. Additionally, private marketing organizations, given greater scope by the Indian Government, were improving the marketing of fertilizer and the quality of storage facilities. AID said that further development in that direction should lead to a satisfactory marketing mechanism but that some investment in new storage facilities would be needed.

At the suggestion and with the assistance of AID, in 1968 the Government of India developed a new reporting system to forecast its import requirement, which it is now installing.

The World Bank and others believe that India will require fertilizer imports for the next few years; however, the system of distribution and marketing is a limiting factor in increasing fertilizer consumption. The World Bank believes that the development of a more efficient marketing organization may require financial assistance.

## CHAPTER 1

### INTRODUCTION

AID provides loans for the purchase of fertilizer and other agricultural and industrial commodities needed to help India in its effort to achieve self-sufficiency in food-grain production. All fertilizer imported by India is controlled by various central and State government departments. (India is a federation of 17 States and 10 territories.)

The fertilizer is procured by the Indian Department of Supply, Ministry of Foreign Trade and Supply, and is shipped to three major ports, as well as several minor ports, in India. The Ministry of Food, Agriculture, Community Development and Cooperation is responsible for distributing imported fertilizer, which it does by quarterly allotments to the States. Prior to 1969 the latter Ministry was responsible also for distribution of 30 percent of the domestically produced fertilizer. The domestic manufacturers are now free to sell their entire production in the open market.

Each State is responsible for the distribution of imported fertilizer within its borders. Generally two distribution channels are used, State and local government subdivisions and cooperatives. Requests from the States to the Ministry for imported fertilizer are the basis for the quarterly allotments by the Ministry.

Primary responsibility for establishing adequate procedures and controls for procurement, receipt, distribution, and utilization of commodities financed by AID rests with the Government of India. AID is responsible for ascertaining the effectiveness with which the Government of India is meeting this responsibility.

In AID's view, the purpose of program assistance is to achieve (1) changes in allocation of resources by the recipient country, (2) an increased rate of developmental savings and investment, (3) continued growth of the economy, (4) initiation of self-help measures, and (5) consent to other U.S. policy purposes. Special progress reports evaluating program assistance are not required, but proposals for renewed program assistance covering subsequent periods are to

outline the facts regarding the results achieved and therefore should contain the opinion of the Mission director as to the effectiveness of the assistance.

As of May 1970, AID had financed about \$429 million worth of fertilizer under 13 commodity loans made to India. This amount was about 26 percent of the total amount of the 13 loans. Commodity loans cover about 90 percent of the assistance being provided to India.

The significance of the fertilizer program in India was brought out in the figures showing that in 1 recent year AID had financed worldwide purchases of fertilizer valued at \$152 million, 70 percent of which was destined for India.

Our review consisted of an examination of AID files and discussions with United States Government officials in India. We also visited the port and fertilizer storage facilities in India, as well as selected local fertilizer production facilities, and held discussions with Government of India officials responsible for production and distribution of fertilizer.

## CHAPTER 2

### PROCUREMENT OF FERTILIZER UNACCEPTABLE TO CONSUMERS

All AID-financed fertilizer is procured by the Government of India through formal advertised-bid procedures. Notices requesting bids on proposed purchases of fertilizer are issued by the India Supply Mission in Washington, D.C. Once fertilizer is shipped from the United States, it is under the complete control of the recipient country.

We were advised that supplies of ammonium sulfate purchased by India generally were obtained from European sources prior to 1967. The fertilizer obtained from these sources was a white-crystal type which was in short supply in the United States. Because of the large quantities of this fertilizer needed by India, AID was concerned that purchases of the volume required would cause serious price increases for the white-crystal type of ammonium sulfate in the United States. AID personnel decided to write procurement specifications that would allow a brown-flake type of ammonium sulfate to be procured because it was available in larger quantities and at a lower price. No test of the marketability of this substitute product was made in India, and subsequent events revealed a low consumer acceptance of the product.

During fiscal years 1967 through 1969, about 2.3 million metric tons of AID-financed ammonium sulfate, valued at about \$117 million, were procured by India. About 300,000 tons were purchased under the changed specifications. AID estimates of the amount of ammonium sulfate on hand as of April 1970 varied from 500,000 to 1.1 million metric tons. The fertilizer was valued at a delivered price of \$50 a metric ton, or a total value of as much as \$55 million. The lower figure for the amount of ammonium sulfate on hand apparently did not include stocks on hand at the State cooperatives. We were advised that no one knew the actual amount of ammonium sulfate in India.

In commenting on this matter, AID said that about 300,000 tons of ammonium sulfate were purchased under specifications which permitted purchase of the brown-flake product and agreed that this type of fertilizer had proved to

be difficult to sell. AID said also that, in its opinion, all types of ammonium sulfate stocks did not move as fast as expected, because of a shift of market preference to urea in India.

As stated previously, no test of marketability of the brown-flake type of ammonium sulfate was made in India. AID officials agreed that test marketing of new products was perfectly sensible. They commented that the brown-flake ammonium sulfate had not been considered, perhaps wrongly, to be a new product because its chemical contents were identical to those of the white-crystal type. Also they said that introduction of three new fertilizer materials into India in the past year had been made with a thorough sales effort, well-planned distribution, and massive farmer education.

AID reported in September 1970, and also stated in its comments on our report, that arrangements had been made to redistribute these unused stocks to the areas of demand. AID said that the stock level of ammonium sulfate was about 200,000 tons in October 1970. It was found that, although most of the fertilizer was stored in the north, there was a large demand for it in the south for use on plantations and in fertilizer-mixing plants. Arrangements were being made also to recondition the fertilizer that had deteriorated in storage.

### CONCLUSION

We believe that AID should have taken steps to ensure that the type of fertilizer financed would be acceptable to the consumer. Since AID was financing purchases of two types of nitrogen fertilizer, we believe that some action should have been taken by AID to ascertain the effectiveness of the Government of India in distributing and utilizing these similar fertilizers.

We believe that, when additional commodity loans for the purchase of fertilizer in large quantities are negotiated with the Government of India and particularly when a superior product may be involved, AID should closely monitor the distribution and use of AID-financed fertilizer, to ascertain whether changes in consumer preference may cause unwanted

stocks to accumulate. Such close monitoring is particularly needed in view of the reported difficulties in the Indian fertilizer distribution and reporting system discussed in the following chapter.

## CHAPTER 3

### WEAKNESSES IN DISTRIBUTION AND REPORTING

#### SYSTEM FOR FERTILIZER IN INDIA

The Fertilizer Association of India, a group dealing with the promotion and marketing of fertilizer, issued a report in 1967 on the fertilizer warehousing and distribution system in India. The report recommended that improvements be made in the existing fertilizer distribution and reporting system.

The Aid to India Consortium had expressed concern at its annual meetings about the need for improvements in this system. A World Bank report on the fertilizer program in India, prepared in April 1969, also identified the development of a more effective system of marketing and distribution as one of the main problems facing the program. The World Bank and others believe that India will require fertilizer imports for the next few years. The Bank believes also that the development of a more efficient marketing organization may require financial assistance.

We found no evidence that AID had provided financial assistance to India for the establishment of a fertilizer distribution and reporting system. We did note that, through a 1961 agreement,<sup>1</sup> United States-owned Indian currency valued at \$19 million had been made available for the construction of a storage and distribution system for food grain in India.

Stocks of AID-financed diammonium phosphate, which totaled about 140,000 metric tons and which were valued at about \$15 million, had been on hand for 10 months or more as of January 31, 1970. These stocks were on hand in four States, and in these States less than half the 255,000 metric tons of fertilizer received during the 3-year period 1967-69 had been used. We noted that supplies of diammonium phosphate shipped to two other States during the same period had

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<sup>1</sup>Involving the International Cooperation Administration.

been readily marketed and that relatively small amounts were on hand.

The receipts and utilization of diammonium phosphate in these six States are shown in the following table.

State	Receipts (note a)				Total receipts	On hand 1-31-70	Total used
	1967	1968	1969	1970			
(metric tons)							
Kerala	-	12,293	5,929	-	18,222	17,000 <sup>b</sup>	1,222
Tamil Nadu	21,695	52,209	38,653	-	112,557	59,196 <sup>b</sup>	53,361
Mysore	3,487	38,792	28,081	1,862	72,222	35,755 <sup>b</sup>	36,467
Andhra Pradesh	2,080	50,093	-	-	52,173	27,596 <sup>b</sup>	24,577
Uttar Pradesh	43,969	91,641	116,770	39,047	291,427	26,000	265,427
Maharashtra	20,634	71,054	54,639	20	146,347	31,532	114,815

<sup>a</sup>By Indian fiscal year, which ends March 31.

<sup>b</sup>According to AID, these stocks had been sharply reduced by January 31, 1971. See page 23 for on-hand quantities at January 31, 1971. A significant part of the reductions was due to redistribution rather than to increased use within the States shown.

Reasons given for the lack of movement of diammonium phosphate in the first four States were (1) there was no marketing and distribution system, (2) the local production of a similar-type fertilizer was sufficient to meet local needs, and (3) the weather conditions were unfavorable. Because the fertilizer had remained in storage for some time, some had deteriorated to the point where added costs were incurred for crushing and rebagging it before it could be offered for sale. Additional costs were incurred also by the marketing cooperatives for storage and interest charges. One of the stated purposes of program assistance--an increased rate of developmental savings and continued growth of the economy--had not been achieved in full measure. Moreover, an AID-financed study team on fertilizer marketing in India reported in September 1968 that the Government of India's program for providing a storage and distribution system for fertilizer, seed grains, and other commodities had no relation to market strategy and that warehouse space had been constructed with no apparent relation to need.

In June 1969 AID entered into a contract with the Fertilizer Association of India to perform a study, at a cost of \$200,000, of the demand and marketing of fertilizer in India. This contract was financed with U.S.-owned local currency. Mission employees advised us that the reason for

the additional study on this subject was to obtain more comprehensive information. This study is to be completed by October 1971.

In presenting its 1971 program to the Congress, AID reported that India's consumption of fertilizer must continue to rise sharply if the new agricultural policies are to succeed. It was reported that fertilizer consumption had slowed, however, because of marketing and other problems.

## CONCLUSION

We believe that, because concern was expressed by the Aid to India Consortium, as well as the World Bank, about the marketing, distribution, and reporting system for fertilizer in India, good management practices would have dictated a need for concurrent planning and development of these systems. Moreover, the recognition by the Government of India's operating group and by the AID-financed study teams that significant problems existed in the fertilizer distribution system should have alerted management to the need for action. This was especially true since large amounts of U.S.-owned local currency would be available for financing projects of this type, as evidenced by its use in prior years for providing food-grain storage and distribution facilities.

AID, in commenting on a draft of this report in March 1971 (see app. I), said that, in its opinion, financial assistance was not required to improve the distribution and use of fertilizer. What was required--technical assistance, training of Indian personnel, and active participation by AID in focusing attention on marketing problems in India--was provided. This, they said, was reflected in actual sales of greatly increased quantities of fertilizer.

AID agreed that the storage and distribution system for fertilizer in India had not developed to the point where it could quickly adjust to changing market situations. AID said, however, that there was no indication that the lack of acceptance of diammonium phosphate by the farmers had caused accumulation of stocks of this fertilizer in south India. AID attributed the accumulations to unfavorable weather conditions.

It should be noted that a World Bank report issued in April 1969 stated that a limiting factor on fertilizer consumption in India in 1968-69 was the system used for distributing and marketing, as well as the unfavorable weather.

On the basis of its foregoing statement, AID expressed the opinion that the stock accumulations did not point to identifiable failures in the distribution system and said that it saw no reason to conclude that additional storage space would have prevented the stock accumulations. AID did

agree that there was considerable scope for improvement in the marketing of fertilizer and in the quality of storage facilities. It pointed out, however, that progress in both of these areas had been and was being made primarily because the Indian Government had given private marketing organizations greater scope.

In our opinion, an adequate distribution and reporting system would have allowed earlier redistribution of fertilizer stocks. This would have reduced storage and interest costs and, if better quality storage facilities were available, it might have avoided some of the additional costs that were attributed to repackaging stocks of deteriorated fertilizer. This, in turn, would have resulted in a larger measure of achievement of the stated purposes of program assistance.

In future AID financing of large quantities of fertilizer, we believe that AID should take action to ascertain what is needed to establish an adequate distribution and reporting system for fertilizer. Although progress may result from the greater latitude given to private marketing organizations in India, it is our opinion that this additional action will be necessary if AID is to meet its responsibility of monitoring the fertilizer program and is to ensure that greater effectiveness is achieved in the assistance program.

## CHAPTER 4

### MISSION SURVEILLANCE OVER

#### USE OF AID-FINANCED FERTILIZER

Mission surveillance over utilization of AID-financed fertilizer was accomplished through end-use checks performed by Mission auditors. These checks identified the problems of overstocking and maldistribution of certain types of fertilizer, as shown by audit reports issued in 1969. The audit reports recommended that improvements be made in the fertilizer storage, distribution, and reporting system and that information on fertilizer utilization be provided by the Government of India. The only action taken as a result of these recommendations had been to commission additional studies in the area.

In commenting on a draft of this report, AID concurred that studies were not action but stated that the studies should precede action. It also pointed out that it was hoped the studies would show whether steps taken or planned by private firms and cooperatives would be adequate or whether it would be necessary for governmental units to step in.

Our draft report noted that, insofar as we were able to determine, the lack of consumer acceptance was not mentioned in the AID internal audit reports and that end-use checks, although they provided for surveillance over commodity utilization, were ineffective when consumer acceptance problems were encountered. We therefore expressed the view that additional surveillance was needed so that consumer acceptance problems could be identified at an early date to avoid possible deterioration of fertilizer stocks and to eliminate unnecessary inventory costs associated with long periods of storage.

AID replied that it appeared somewhat doubtful that additional surveillance could be a substitute for market surveys and that it believed that a test market of new products was the only practicable way to introduce new products. We agree with AID that surveillance cannot be a

substitute for market surveys in the introduction of new products. We believe, however, that only through the use of additional surveillance over the acceptability of new products can early identification of problems, such as occurred with ammonium sulfate upon the introduction of urea-based fertilizer into India, be achieved.

APPENDIXES

DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D.C. 20523

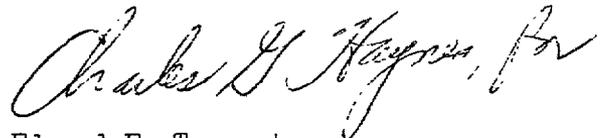
MAR 18 1971

Mr. Oye V. Stovall  
Director, International Division  
U.S. General Accounting Office  
441 G Street, N.W.  
Washington, D. C. 20548

Dear Mr. Stovall:

I am pleased to transmit herewith a memorandum dated March 17, 1971, from Mr. Donald G. MacDonald, Assistant Administrator for the Bureau for Near East and South Asia, which constitutes the Agency's consolidated response to the U.S. General Accounting Office's draft report entitled, "Poor Utilization of Fertilizer Financed by AID to Increase Agricultural Production in India."

Sincerely yours,



Edward F. Tennant  
Auditor General

Enclosure: a/s

GAO note: Page references in this appendix have been changed to correspond to the pages of this report. However, because of changes to the draft report, the agency comments in some instances are not now entirely relatable to this report.

APPENDIX I

OPTIONAL FORM NO. 10  
MAY 1962 EDITION  
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

# Memorandum

TO : AG, Mr. Edward F. Tennant

DATE: MAR 17 1971

FROM : AA/NESA, *Shue Donald*  
D. G. MacDonald

SUBJECT: GAO Draft Report on "Poor Utilization of Fertilizer Financed by AID to Increase Agricultural Production in India"

We appreciate having been given an opportunity to review the draft report of the GAO discussing a number of problems in the distribution of fertilizer in India. Our comments on the report are summarized in the following paragraphs; a more detailed discussion of the findings and recommendations will be found in the Attachment.

The GAO found that "imported fertilizer financed by AID has not been used to the fullest extent because the fertilizer distribution and reporting system in India was inadequate.

[See GAO note 1.]

We agree that the storage and distribution system for fertilizer in India has not yet developed to the point where it can quickly adjust to changing market situations. Nevertheless, the market has more than doubled in a period of five years, from 555,000 nutrient tons of nitrogen in 1965 to over 1.3 million nutrient tons in 1970. The sale of other types of fertilizers has increased correspondingly and this growth of the fertilizer market was, of course, one of the principal factors in the increase in food grain production. The instances of fertilizer stock accumulations discussed by the GAO should be viewed against this background of a very rapid market expansion.

In appraising the efficiency of the Indian distribution system, one also needs to consider that (a) normally about ten months elapse between the time the Indian Government establishes its import program and the arrival of product in an Indian port; and (b) that sufficient tonnage of fertilizer must be in storage in India to ensure a continuous flow to dealers and consumers.

Diammonium phosphate (DAP) was introduced into India first in 1967 and quickly accepted by the Indian farmers who recognized the advantages of a high-analysis material which, combining nitrogen and phosphate, offered advantages both in application and in price. Consumption in the four southern states of Kerala, Tamil Nadu, Mysore and Andhra Pradesh suffered setbacks in 1968 and 1969 because of a widespread failure of the monsoon in that region. Four successive crop seasons were affected by these



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unfavorable weather conditions. As a result, stocks in those states accumulated.

[See GAO note 1.]

The conclusion that weather conditions rather than lack of product acceptance caused the drop in DAP sales is supported by the fact that sales in South India of locally produced and well established fertilizers of different analysis suffered similarly during that period. Early this year, the combined stock of DAP in the four states had been reduced to a total of about 52,000 tons, a level considered necessary to assure continuing supply to the farmers. The stock reductions are detailed in the Attachment.

The GAO also noted stock accumulations of Ammonium Sulfate (AS). The flaked product which proved troublesome, although chemically identical to AS in crystalline form, was purchased by India only in 1969. About 310,000 tons were purchased in that year and none before or after. ("Off-white" crystalline AS had been purchased earlier but we are not aware that it encountered marketing problems.) Stock accumulations of the magnitude mentioned in the report (estimates ranging from 500,000 to 1.1 million tons), therefore, must have included AS in crystalline form. While we agree that the flaked product proved difficult to sell, we believe that the primary reason for the slowdown in sales of AS in any form was the increasing competition from urea which, with about twice the nutrient value of AS, won quick and enthusiastic acceptance. The stock level of AS in October 1970, according to figures of the Indian Ministry of Agriculture, amounted to about 200,000 tons held by the Central Fertilizer Pool which is in the process of redistributing them to areas of demand. It is expected that these, as well as stocks held by the States, will be consumed by the end of this calendar year.

[See GAO note 1.]

On the basis of the foregoing, we do not believe that the stock accumulations point to identifiable failures of the Indian distribution system. In particular, we see no reason to conclude that additional storage space would have helped to prevent the stock accumulations discussed in the Report. Nevertheless, we see considerable scope for improvement in the marketing of fertilizer and in the quality of storage facilities. Progress in both these areas has been and is being made primarily because the Indian Government has given private marketing organizations greater scope. Further development in that direction would, we believe, lead to a satisfactory marketing mechanism and to investment in storage facilities as and where they are needed. Occasional market dislocations would, however, be likely to occur from time to time, whether as a result of weather conditions, introduction of superior products or other factors.

BEST DOCUMENT AVAILABLE

## APPENDIX I

The stock reporting system used by the Indian Government to forecast its import requirement has been the subject of numerous discussions with the Ministries of Agriculture and Finance during the last few years. In 1968, the former, at the suggestion of AID, commissioned a study by the Indian Institute of Management which designed a new reporting system that is now being installed. We expect that it will result in very substantial improvements in reporting stocks and sales and in forecasting requirements.

Attachment: a/s

BEST DOCUMENT AVAILABLE

ATTACHMENT 'A'Comments on "Poor Utilization of Fertilizer Financed by  
AID to Increase Agricultural Production in India".

## 1. On page 9, the Report states that:

"AID personnel advised us that AID has provided no assistance to India for establishment of a fertilizer storage, distribution and reporting system".

If "assistance" is to be read as "financial assistance" that statement is correct. We do not believe that financial assistance, which would presumably have taken the form of US-owned rupees, was needed. What was needed was an appreciation of the problems which the marketing of vastly increased quantities of fertilizer would present, and AID has done a considerable amount of work in focusing attention on these problems. Frequent discussions with high-ranking Government officials, technical assistance to the Fertilizer Association of India, training of Indian personnel in the United States and active participation in meetings and seminars in India are examples. The results of these activities are beginning to show, as, e.g. in an improved reporting system, more intensive and more frequent contacts between government and private manufacturers on marketing problems; and, above all, actual sales of greatly increased quantities of fertilizer.

2. Pages 9, 10--DAP Stocks. As mentioned in the covering memorandum, the slowdown in sales of DAP in the four southern states was, in our opinion, due to weather conditions (which affect fertilizer sales everywhere). [See GAO note 1.]

The Coromandel Fertilizer Plant in Vizag, Andhra Pradesh, managed by an executive of the Chevron Chemical Co. and producing a nitrogen-phosphate fertilizer of a different formulation (20-20-0 and, in the past, 28-28-0), ran into similar sales problems during the same period although its product was well established. As of January 31, 1971, the stocks of DAP in Southern India had been reduced as follows:

	<u>1/31/70</u>	<u>1/31/71</u>
Kerala	17,000 M/T	1,000 M/T
Tamil Nadu	59,196	24,196
Mysore	35,755	19,755
Andhra Pradesh	27,596	7,596
	<u>139,547 M/T</u>	<u>52,547 M/T</u>

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The new stock level is considered necessary for satisfaction of current demand; new supplies will arrive in India later this year, but we do not know at this time what part of the 120,000 tons being purchased (90,000 of which financed by AID) will be routed to the southern States.

[See GAO note 1.]

4. Page 6 -- Ammonium Sulfate (AS). Following is a list of Indian AID financed purchases of AS from 1966 to 1969 showing the form in which it was specified:

<u>Date of Invitation for Bids</u>	<u>Specification</u>	<u>Quantity Purchased</u>
8/17/66	Crystalline	194,000
12/23/66	Crystalline	300,000
5/10/67	Crystalline	498,000
10/12/67	Crystalline	338,500
Retender 1/18/68	Crystalline	144,200
5/10/68	Crystalline	198,000
7/5/68	Crystalline	131,800
8/1/68	Crystalline	221,100
10/1/68	Crystalline	12,000
Subtotal		<u>2,037,600</u>
2/14/69	Crystalline, compacted flakes, prilled or granular	229,800
5/8/69	Crystalline, compacted flakes, prilled or granular	80,500
Subtotal		<u>310,300</u>
Grand Total		<u>2,347,900</u>

As the foregoing tabulation shows, only 310,300 tons of AS were purchased under specifications which permitted the supply of AS in the form of flakes. Even assuming that the entire quantity was purchased in that form, this is the maximum quantity of product which might have suffered from sales resistance to flaked AS. All of it was purchased in 1969; none of it has been purchased since. There is no doubt, however, that stocks of AS in all forms did not move as fast as expected. AS sales generally slowed down as urea became more readily available in India. This would be a problem of shifting market preferences rather than sales resistance to an unknown product. The situation in the U.S. is similar; (U.S. producers of by-product AS are, therefore, practically unable to sell it at any price and no other AS is being manufactured in the U.S. at this time.) By October 1970, the Indian Government reported the total Central Pool Stocks at 200,000 tons and that quantity, together with whatever stocks the States still hold, should be sold by the end of this year.

[See GAO note 1.]

6. Pages 7,8 -- Recommendation.

"We recommend that, in future financing of commodity assistance to countries where the commodity to be provided is not in common use tests be performed to determine the marketability of the commodity financed prior to procurement in large quantities."

[See note 2.]

The recommendation to test-market new products is, of course, perfectly sensible. The flaked type AS was, however, not considered--perhaps wrongly--as a "new" product since its chemical characteristics were identical to the "old" product. Within the last year, three new fertilizer materials have been introduced into India, with all the precautions one could reasonably expect: a thorough sales effort, well planned distribution and massive farmer education. We are, therefore, already following this recommendation.

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### 7. Page 14

"The only action taken as a result of these recommendations in AID audit reports which recommend that improvements be made in fertilizer distribution, storage and reporting has been to commission additional studies in the area." [See note 2.]

Admittedly, studies are not "action". But they should precede action.

[See GAO note 1.]

In addition to steps which private firms and the cooperatives have taken and are taking, it may be necessary for governmental units to step in. Whether this is so, we hope the studies will show.

### 8. Page 14 -- Recommendation.

"We recommend that in the absence of a market survey additional surveillance be provided for commodities that are not in common use in the recipient country. If identified early enough, fertilizer unacceptable to the consumer can be redistributed to other locations thereby avoiding possible deterioration and added costs associated with long periods of storage." [See note 2.]

The redistribution of DAP and AS stocks that, inferentially, is recommended is taking place. Whether "additional surveillance...for commodities that are not in common use in the recipient country" can be a substitute for market surveys, market preparation and other operational measures appears somewhat doubtful. We believe that the GAO's recommendation to test-market new products (discussed under 6, above) is the only practical way to tackle the introduction of new products.

#### GAO notes:

1. Deleted comments relate to matters discussed in the draft report but omitted from this report.
2. These recommendations were included in the draft report but omitted from this report.

PRINCIPAL OFFICIALS OF THE  
 AGENCY FOR INTERNATIONAL DEVELOPMENT  
 HAVING MANAGEMENT RESPONSIBILITIES  
 FOR THE MATTERS  
 DISCUSSED IN THIS REPORT

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
<b>ADMINISTRATOR:</b>		
John A. Hannah	Mar. 1969	Present
William S. Gaud	Aug. 1966	Jan. 1969
<b>DIRECTOR, MISSION TO INDIA:</b>		
Howard E. Houston	May 1971	Present
Paul L. Oechsli (acting)	Dec. 1970	May 1971
Leonard J. Saccio	Oct. 1969	Dec. 1970
John P. Lewis	Sept. 1964	Oct. 1969

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